

Melioidosis: an uncommon cause of neck abscess

Abu Bakar Zulkiflee, MB, BS*, Narayanan Prepageran, FRCS, Rajan Philip, MMed (ORL-HNS)

Department of Otolaryngology, University Malaya Medical Center, University Malaya, Kuala Lumpur

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Abstract

Introduction: Melioidosis is a life-threatening disease caused by *B. pseudomallei*. It is endemic in Southeast Asia with a few reports from the Western world. It is transmitted via inhalation, ingestion or direct contact with an open wound. Clinically it may present with local or systemic symptoms. Mortality rate is very high in systemic disease; but local infection is usually mild, which causes delay in seeking medical attention.

Case report: We report a case of neck melioidosis presenting as a parapharyngeal abscess that was successfully managed with incision and drainage and intravenous ceftazidime and co-trimoxazole for 6 weeks followed by eradication therapy with oral co-amoxiclav.

Conclusion: Neck melioidosis must be considered one of differential diagnoses for “cold abscesses” of the neck, especially in an endemic area, in Asian migrants, or in those with history of previous visit from the endemic regions.

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1. Introduction

Melioidosis or Whitmore disease (after Dr Alfred Whitmore, a pathologist who first described it in 1911) is not a common disease in the Western world but is fairly increasing in tropical countries in Southeast Asia and Northern Australia [1]. Manifestations in the neck can be a diagnostic challenge until the exact organism is isolated. Early diagnosis of the disease is important because the antibiotic regimen differs from that of other common neck infections, and special precaution may be needed to prevent reactivation of the disease. Failure in prescribing an eradication therapy may be fatal.

2. Case report

A 47-year-old housewife with type 2 diabetes mellitus presented with a mass on the right side of the neck for 2 weeks. She denied any pain, fever, or difficulty in swallowing. She had no breathing problems or dental complaints. On examination, she was afebrile. There was

a firm mass at the right posterior triangle of the neck, which was nontender (Fig. 1). Results of systemic examinations were normal. Total white count was mildly elevated, and serum glucose level was normal. Computed tomographic scan of the neck showed an abscess in the right posterior triangle (Fig. 2).

She underwent emergency surgical drainage under general anesthesia. Pus for culture and sensitivity grew *Burkholderia pseudomallei*, which was sensitive to ceftazidime, carbapenems, imipenem, and co-amoxiclav.

During ward stay, together with postoperative daily neck dressings, she was on a 6-week course of intravenous ceftazidime 1 g twice a day, combined with co-trimoxazole. Postoperative period was uneventful, and she was discharged well with oral co-amoxiclav.

3. Discussion

The head and neck region is an uncommon but still a possible site for melioidosis because the disease may manifest in any part of the body, although the lung is the most common site [1].

Neck melioidosis must be considered one of differential diagnoses for cold abscesses of the neck, especially in an endemic area, in Asian migrants, or in those with history of previous visit from the endemic regions.

* Corresponding author. Department of Otolaryngology, University Malaya Medical Center, University Malaya, 50603 Kuala Lumpur. Tel.: +603 79502062; fax: +603 79556554.

E-mail address: ab_zulkiflee@yahoo.com (A.B. Zulkiflee).



Fig. 1. Neck mass (arrow) at right posterior triangle of the neck.

The causative agent is *Burkholderia pseudomallei* (formerly known as *Pseudomonas pseudomallei*), which is a free-living, gram-negative, aerobic bacillus that is mainly widespread in Southeast Asia (most cases in Thailand, Malaysia, Vietnam, Cambodia, Laos, and Myanmar) and Northern Australia. The first reported case of neck melioidosis from Malaysia was in 1991 [2]. There are some reports of its presence in other parts of the world such as Central America, the Caribbean, China, Taiwan, Africa, the Middle East, and South Asian countries [2,3].

In the endemic area, the disease usually affects farmers or those from rural areas. *B. pseudomallei* is a natural inhabitant of soil and water in the tropics and subtropics but can also survive in dry atmospheric conditions. It is ubiquitous in the rice-farming areas. It is also present in rubber plantations, cleared fields, cultivated and irrigated agricultural sites as well as in drains and ditches. It is also considered a zoonotic infection because the bacillus can affect horses, sheep, goats, pigs, lambs, cows, and other animals, as well as humans. There have been concerns of *B. pseudomallei* being thought of as a potential biological warfare agent. It spreads to humans through inoculation, ingestion, or inhalation. Cases of human-to-human spread are rare but documented.

Clinical manifestations of melioidosis range from localized infection to acute pneumonia and fulminant septic melioidosis. Once infected, it may remain dormant and become active after months, years, or decades when the host is immunocompromised by drugs (steroids), disease (diabetes mellitus, chronic renal failure, retrovirus infections, hematologic malignancies, collagen vascular disease), or social deprivation (alcoholism, drug abuse, occupational exposure). The factors that provoke the reactivation of latent pathogen probably are environmental variables, stress, and

immunity status. Localized melioidosis occurs in the form of acute suppurative lesions or superficial and deep-seated abscess in the psoas muscle, parotid glands, cervical lymph nodes, and at the root of the mesentery. It may also present as cellulitis, chronic otitis media, and sepsis after burns and trauma. In this case, prolonged painless neck swelling not associated with fever makes melioidosis one of the differential diagnoses. Its clinical presentation differs from other typical “hot” abscesses, which are commonly caused by oral organisms [4].

Laboratory investigation is a vital part to confirm the presence of the bacterium. But isolation and identification of the organism from various clinical specimens may take 3 to 7 days. Immunologic and molecular tests are now available in various major hospitals; unfortunately, their specificities are low.

The main objective of treatment is to reduce the mortality and morbidity in melioidosis. Before the advent of proper antimicrobials, the mortality used to be around 95%. Rational use of antimicrobials has reduced it to half. Ceftazidime is the drug of choice in systemic melioidosis. Ceftazidime (120 mg/[kg·d]) has shown to reduce the mortality significantly in severe melioidosis. However, resistant strains are beginning to appear. Carbapenem antibiotics are also suitable for the treatment of the disease. Doxycycline can be used in localized infections in combination with co-trimoxazole. In acute severe melioidosis, ceftazidime alone or in combination with co-trimoxazole or ciprofloxacin remains the drug of choice. Studies have shown that co-trimoxazole enhances the efficacy of ceftazidime when administered in combination therapy for the treatment of melioidosis. Parenteral amoxycylav (160 mg/[kg·d] for 8 weeks) is a substitute of ceftazidime, and it reduces mortality. Imipenem is a safe

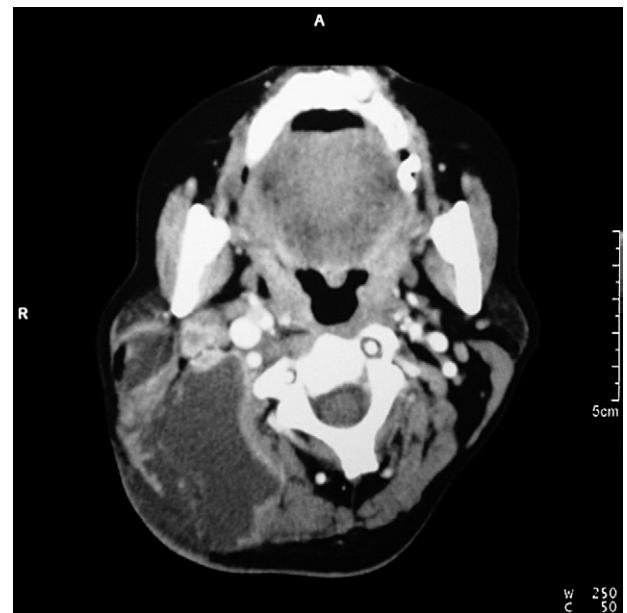


Fig. 2. Computed tomographic scan of the neck with hypodense lesion at the right posterior triangle of the neck.

and effective treatment for acute severe melioidosis and may also be considered an alternative to ceftazidime. A study showed that meropenem (1 g or 25 mg/kg every 8 hours intravenously for 14 days) can be considered as an alternative to ceftazidime and imipenem in the treatment of melioidosis, but this is more expensive, and more trials are required.

Despite appropriate treatment, melioidosis has a high relapse rate. The average time between discharge from hospital and relapse is 21 weeks. Treated patients require long-term follow-up because *B. pseudomallei* remains latent for up to 26 years in the body. For eradication therapy, co-amoxiclav is a safe and well-tolerated antimicrobial agent. The recommended duration for maintenance therapy is 12 to 20 weeks [5].

In melioidosis, supportive therapy is an integral part of management for better prognosis because it includes management of shock and adult respiratory distress syndrome, drainage of pus, good control of sugar in patients with diabetes, and nursing care.

4. Conclusion

Melioidosis should be borne in mind in cases of cold abscesses of the neck when the characteristic features of

abscess are missing, for example, fever and tenderness. Ceftazidime is recommended while waiting for the definitive result and must be subsequently continued with eradication therapy if the culture is positive.

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